REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

A new Abstract is submitted herewith as required by the Office Action.

The specification has been amended to include section headings, as required by the Office Action.

Claim 1 has been cancelled in favor of new claim 11, which recites many of the features of claim 1. Support for the additional features of claim 11 is provided in the specification at least on page 3, lines 25-39, page 8, lines 20-35, and page 9, lines 28-36. Claims 2-10 have been amended to depend from independent claim 11 and to overcome the indefiniteness rejections applied to them. As a result of these amendments, claims 2-11 are pending in the application. Claim 10 has been withdrawn from consideration.

Claims 1, 2, and 7 were rejected under 35 USC §103(a) as being unpatentable over Cohen (Applied Optics, June 1975, vol. 4, No. 6). Claims 3-5 stand rejected under 35 USC §103(a) as being unpatentable over Cohen in view of Ocenasek (EP 0 184 432). Claim 6 stands rejected under 35 USC §103(a) as being unpatentable over Cohen in view of Ocenasek and further in view of Jean (FR 2 622 979). Claim 8 stands rejected under 35 USC

§103(a) as being unpatentable over Philipp (US 4,497,575). Claim 9 stands rejected under 35 USC §103(a) as being unpatentable over Philipp in view of Cohen. To the extent these rejections are d emed applicable to amended claims 2-11, the Applicants respectfully traverse.

New claim 11 recites:

An emitter for emitting electromagnetic pulses, comprising:
a generator that generates at least one electromagnetic pulse;
at least one optical fiber operable to transmit an electromagnetic pulse generated by said generator for the purpose of emitting said electromagnetic pulse; and
an optical system including an optical cavity:
which is disposed in a path of said electromagnetic pulse transmitted by said optical fiber; and
which has an input provided with a first partially reflecting mirror and an output provided with a second partially reflecting mirror, wherein:
said first partially reflecting mirror is placed between a first fiber length and a second fiber length of the optical fiber, said first fiber length being linked to the generator,
said second partially reflecting mirror is placed between the second fiber length and a third fiber length of the optical fiber, said second fiber length being used to link said first and second mirrors together, and
the length of said second fiber length and the transmission/ reflection ratio of said first and second mirrors are adjusted such that, there is created at the output of said optical cavity, from a single said electromagnetic pulse incident on said optical cavity, a train of emitted electromagnetic pulses which have variable geometric characteristics and are associated with said incident electromagnetic pulse.

The Applicants respectfully submit that Cohen fails to disclose or suggest the claimed features of, *inter alia*: (1) a

first partially reflecting mirror that is placed b tween a first fiber length and a second fiber length of an optical fiber, with the first fiber length being linked to the generator, and (2) a second partially reflecting mirror that is placed between the second fiber length and a third fiber length of the optical fiber, with the second fiber length being used to link the first and second mirrors together. Additionally, the Applicants submit that Cohen fails to disclose or teach adjusting a second fiber length and a transmission/reflection ratio of the first and second mirrors that create, from a single incident electromagnetic pulse, a train of emitted electromagnetic pulses which have variable geometric characteristics.

By contrast to the claimed structure, Cohen discloses only one optical fiber. As illustrated by Cohen's Fig. 1, there is no fiber outside of the mirrors.

The optical fiber is not an essential element of Cohen's device. What is essential to Cohen's device is the length of the optical cavity, which is the distance between the two mirrors along the pulse path. This optical cavity length is essential because Cohen teaches measuring the relationship between the optical cavity length and the pulse spreading caused by this length.

By contrast to Cohen's teaching, the claimed optical fiber is necessary to implement the theory, described on page 9, lines 9-24, of Applicants' specification, regarding variable emission geometry characteristics. Cohen does not teach generating pulses with variable geometry characteristics. Moreover, Cohen does not teach the claimed features of adjusting: (1) the length of fiber between the two mirrors and (2) the transmission/reflection ratio of the two mirrors, to create a train of emitted pulses with variable geometric characteristics. Instead, Cohen discloses a device for measuring the relationship between the length of an optical fiber and the temporal pulse spreading of a pulse passing through this optical fiber. Thus, Cohen does not disclose an emitter for emitting electromagnetic pulses, as claimed by Applicants.

Cohen discloses in Fig. 1 a measuring device that includes a laser, an optic fiber device, a diode sensor, a pulse amplifier, and a calculation means. The optical fiber device includes a sole fiber and two partially transparent mirrors, which are pressed into contact with the input and output ends of the fiber. This optical fiber device generates an output train of pulses, which have traveled through different lengths of the optical fiber in accordance with the number of reflections each pulse has experienced within the fiber. The information generated by these

pulses is used for determining the aforementioned relationship between the length of the optical fiber and the temporal pulse spreading.

The aim of Cohen's optical fiber device is to overcome the problem of the previously known procedure for determining the relationship between the length of the optical fiber and the temporal pulse spreading (see Cohen, conclusion section, page 1356). The previously known procedure is destructive, because the fiber lengths are successively shortened by cutting.

The optical fiber device of Cohen's measuring device is not an emitter for emitting electromagnetic pulses, which have variable geometric characteristics. Cohen's measuring device takes into account only the different distances or lengths of the pulses in the fiber to measure the length dependence of pulse spreading.

Consequently, Cohen discloses a specific measuring device and not an emitter, as claimed by Applicants. Cohen's device has the sole aim of determining the relationship between the length of the optical fiber and temporal pulse spreading. Cohen's device is not able to emit electromagnetic pulses outside of the device.

Furthermore, Cohen's measuring device is a unitary device. Thus, it is not possible to extract a few features (i.e., the optical fiber device) of this unitary device.

In accordance with the above discussion, Applicants submit that Cohen fails to disclose or suggest all of the features of the present and the benefits accruing from them. Therefore, the Applicants submit that allowance of claim 11 and all claims dependent therefrom is warranted.

With regard to claim 4, Applicants submit that Cohen and Ocenasek fail to disclose or suggest the claimed coupling means having two lenses and a mirror placed between these two lenses. Therefore, Applicants submit that allowance of claim 4 is warranted for this further reason.

In view of the above, it is submitted that this application is in condition for allowance and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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JEL/DWW/att

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Exhibit I

IN THE CLAIMS:

Kindly amend the claims as follows.

2. (Amended) The emitter as claimed in claim [1] 11, [characterized in that] wherein at least one of said first and second mirrors [(M1A, M2A)] is linked directly by opposed faces to two of said lengths [(F1, F2, F3)] of said optical fiber [(F)].

3. (Amended) The emitter as claimed in claim [1] 11, [characterized in that] wherein at least one of said first and second mirrors [(M1B, M2B, M1C, M2C, M1D, M2D)] is linked, via an associated optical [coupling means] coupler [(C1B, C2B, C1C, C2C, C1D, C2D)], to two of said lengths [(F1, F2, F3)] of said optical fiber [(F)].

4. (Amended) The emitter as claimed in claim 3, [characterized in that] wherein said optical [coupling means] coupler [(C1B, C2B)] comprises two lenses [(4 to 7)] optically linking said two of said lengths [(F1, F2, F3)] of the optical fiber [(F)], the mirror [(M1B, M2B)] associated with said optical [coupling means] coupler [(C1B, C2B)] being placed between said two lenses [(4 to 7)].

5. (Amended) The emitter as claimed in claim 3, [characterized in that] wherein said optical [coupling means] coupler comprises at least one graded-index lens [(8 to 13)].

6. (Twice Amended) The emitter as claimed in claim [1] 11, [characterized in that it comprises] further comprising an optical element [means (16) preventing] that prevents an electromagnetic pulse generated by said generator [(2)] from returning toward [the latter] said generator.

7. (Twice Amended) The emitter as claimed in claim [1] 11, [characterized in that] wherein said generator [(2)] is [capable of generating] operable to generate at least two electromagnetic pulses, of different wavelengths.

8. (Twice Amended) A test system for determining the losses of a fiber-optic component, said system comprising:

an optical source [(1D) capable of emitting] operable to emit at least one electromagnetic pulse;

a photoreceiver [(20) capable of measuring] operable to measure characteristics of an electromagnetic pulse emitted by said optical source [(1D)] and transmitted by a fiber-optic component [(19, 21)]; and

a data acquisition, storage and processing [means (22, 24)] device which receives the measurements generated by said photoreceiver [(20)] for said fiber-optic component [(19)] to be tested and for a reference fiber-optic component [(21)] and which determines, on the basis of these measurements, the losses of said fiber-optic component [(19)] to be tested, [characterized in that] wherein:

said optical source comprises the emitter [(1D) specified under] of claim [1] 11.

9. (Amended) The test system as claimed in claim 8, [characterized in that] wherein the optical fiber [(F)] of the emitter [(1D)] for emitting electromagnetic pulses has at least two characteristics, the core diameter and the numerical aperture, which are predetermined and in that at least one of said characteristics of said optical fiber [(F)] is identical to that of the fiber-optic component [(19)] to be tested.

10. (Twice Amended) The use of the emitter specified under claim 11, in order to determine the value of at least one characteristic parameter of a fiber-optic component, in which use:

a) at least one electromagnetic pulse is generated, which is emitted into said fiber-optic component [(19)];

b) measurements relating to said electromagnetic pulse transmitted by said fiber-optic component [(19)] are carried out; and

c) said characteristic parameter is determined at least from said measurements,

characterized in that, in step a), an electromagnetic pulse train is generated by means of said emitter, at least some of the electromagnetic pulses of which have different values for at least one optical characteristic, and in that, in step c), the value of said characteristic parameter is determined for each of said different electromagnetic pulses of said pulse train.